

MD-portal: Highly Effective Website for Nuclear Materials Information Management

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1. Introduction

Nowadays, internet web services have become absolutely necessary in an everyday living. A web-based system is widespread in not only everyday activities but also business fields. In past years, the systematic information of various properties of materials usually has been provided as tabulated documents; however it recently has been provided as web-based DB [1]. There are many websites providing material properties information, representative examples include MatWeb from the United States, Granta MI from England and MatNavi from Japan. In 2003, the nuclear materials division in KAERI established a website about nuclear materials property DB, called MatDB [2]. To inherit it, a website called MD-portal has been recently set up to release degradation information and various properties of nuclear materials. In this presentation, the structure and characteristics of MD-portal will be mentioned, and comments on its application will be given.

2. Structure and Features

MD-portal used Joomla platform which is a verified open-source contents management system (CMS). A Joomla website works on the base of Apache-PHP-MySQL system which is the most favorite web-server solution. Joomla provides a convenient tool to maintain and organize articles in the website. Fig. 1 shows the homepage of MD-portal site; it shows various layouts which assist to find the contents easily.

Fig. 2 shows the schematic diagram of the main menu of MD-portal, which is comprised of 8 menus. First, the MD-portal information menu introduces the mission and the details of the nuclear materials division in KAERI. Next, it introduced the 8 teams of the nuclear materials division, and lists the important research results and ongoing studies in the Work Area menu. The Materials Degradation menu contains technical articles about the degradation of LWR, SFR and VHTR. The Materials development menu summarizes information of newly-developing materials for the next nuclear power plants. In the Own Technology menu, the currently applicable technologies developed by the nuclear materials division are listed. The Pressroom menu briefly delivers the news of the nuclear materials division, and the Forum menu shares the questions and answers

regarding the nuclear materials thus leading to discussion. The Materials database (MatDB) menu provides the quantitative data about the materials properties with the increasing degradation condition. The specifications of laboratory equipment operating in the nuclear material division are also summarized in MD-portal site.



Fig. 1. Main page of MD-portal website.

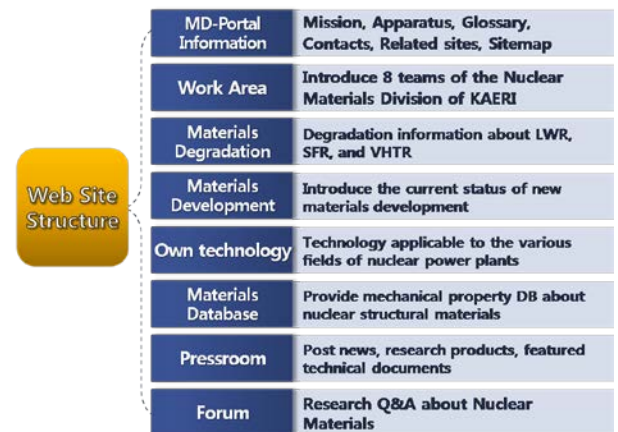


Fig. 2. Menu structure of MD-portal web site.

Technical articles in MD-portal summarized the research results of the nuclear research program in KAERI. Fig. 3 shows an example of technical article about materials degradation of LWR. It summarizes the key points regarding material degradation and gives a guide to find more information. Every article contains author information, and the email addresses are listed

in the contact menu, thus it is convenient to contact when there are any questions or opinions regarding the article.

The research products from the nuclear materials division are categorized into research papers, patents, and books/presentations, and the brief explanation of the products can be found in the categories.

safety via providing a variety of information of nuclear materials. The research result and technical documents will be constantly updated. Industrialization of nuclear material field may be possible through the information of the own technology.

REFERENCES

[1] Weiju Ren, David Cebon, Steven M. Arnold "Effective Materials Property Information Management for the 21st century" Journal of Pressure Vessel Technology AUGUST 2011, Vol. 133 / 044002-1
[2] S. J. Park, D. W. Kim, I. Jeon, W. S. Ryu, "A User's Manual for Managing Database System of Tensile Property", KAERI/TR-2530/2003, 2003.



Fig. 3. MD-portal technical documents about material degradation in LWR.

Distinctive features of MD-portal are that it is specialized in nuclear materials fields, and it can provide DB and technical articles about the materials degradation from neutron irradiation and nuclear corrosion environment simultaneously.

3. Summary

MD-portal has been built up recently and currently accessible (<http://mdportal.kaeri.re.kr>). The information of the nuclear materials is provided as form of technical articles and materials property database. It will focus on promoting the improvement of nuclear